Minutes of the 42nd FOM meeting held on 02.11.2010

Agenda:

1) Follow-up of the last meeting (K. Hanke)
2) Status of the machines (Supervisors)
3) Schedule (K. Hanke)
4) AOB
5) Next agenda

1. Follow-up of the last meeting

The minutes of the 41st FOM meeting were approved.

Follow-up from the last FOM:

a) Status of the PS B-field fluctuations.
No news.

b) LEIR vistar status. Further investigations showed that there is a problem with the DSC. M. Ludwig will be contacted to have an update on the issue.

c) INCA status. S. Gilardoni reported that the INCA deployment is progressing.

The beam statistics can be found here.
A new web page with the accelerator statistics (beta version) is available here.

2. Status of the machines

LINAC2 (F. GERIGK):
The Linac had a good week.

On Friday a new setting of the LT-LTB line has been tested for the CNGS user. The radiation measured by the PAX22 decreased from 3 muSv/h to 2 muSv/h. The PAX23 increased from 3.5 muSv/h to 4 muSv/h. In agreement with the PSB, it was decided to use this optics for all users.

K. Hanke mentioned that on Wednesday 3/11 the intervention on the lift will start. The lift will not be available to move spare parts from one floor to another. The scheduling of the work had been endorsed by the IEFC.

PSB (B. MIKULEC):
The PSB had a good week.

On Thursday, in the shadow of the PS access, there was an intervention on the ring4 C02 cavity.

During the week there were recurrent problems with the vertical shaver of ring4. This was causing intermittent losses. A temporary fix was implemented since the expert of the system was not at CERN. The problem has by now been permanently solved by changing a thyristor of a control card.

During Saturday night, the ARCON system failed and the beams were interrupted while the piquet RF was intervening.

The gate of the extraction transfer line transformers had to be adjusted for some users as it showed wrong values. The BI expert implemented a new saturation detection algorithm for the wire scanners with the new PM. Wire scanner measurements have shown encouraging results with respect to the last months.

The LHC50 and the LHC75 have been re-optimised.

ISOLDE (D. VOULOT):
ISOLDE had a good week.

HRS: REX+RILIS were delivering beam for Miniball. The yields were very good. There was a communication problem with a PLC which controls the power supply of the target. This failure caused a stop of the target heating. The HRS target was cooled down on three occasions, but luckily the target did not break. The EPC and CO experts are following up this issue.

GPS: there was a target change on Thursday. The target installed densities a high density UC target. The maximum intensity deliverable on the target has been determined by RP to 0.6 uA. The GPS robot failed its calibration test and a visual inspection was done to check the status of the robot.

ISOLDE users (D. VOULOT for M. KOWALSKA):
The users were happy.

The beam intensity was also high enough to allow measuring precisely the beam transmission efficiencies up to the experiments.

PS (S. GILARDONI):

The PS had a good week. The main problem was related to the 80 MHz cavity installed in SS08. On Tuesday first investigations done outside the tunnel did not show any problem that could explain why the cavity cannot deliver the nominal voltage needed for the LHC beams. In agreement with the experts, and as announced at the last FOM, a first access in the tunnel was scheduled for Wednesday morning to do more tests. The access was finally delayed to Thursday morning due to the LHC schedule. The tests did not reveal any evident cause for the cavity problems. It was decided to tune the cavity for ions, and to reduce the programmed voltage with the hope that the ion bunch length would be good enough to allow the setting up of ions in the SPS. This was confirmed to be the case, with the voltage being limited to 120 kV. Unfortunately the cavity was dropping quite often, but the faults could always be reset. S. Gilardoni wanted to thank the RF specialists for the investigations and their flexibility for the multiple changes in the schedule for the intervention.

C. Rossi added that the problem seems to be related to the cavity itself. The cavity will be open during the next Xmas stop for further investigations.
S. Gilardoni added that due to the intervention on the cavity, the ion beam could be delivered only in the afternoon to the SPS. The foreseen MD that should have started at about 8:00 AM took finally place starting at about 5:00 PM, with a different program.

On Monday and later on Wednesday, the EPC experts intervened to reduce the 50 Hz noise on the MPS. This improved drastically the quality of the slow extraction spill, and the beam stability of the first batch injected on the LHC25 user.

For the entire week, the 10 MHz cavities had problems, with many trips and a failure of a relay-gap. According to the expert this is probably due to the extensive use of the cavity of this year.

On Saturday night the ARCON system in the CCC signalled a monitor fault, whereas the acquisition on the ARCON console showed that all the monitors were online and working. Following the procedure, the RP piquet was contacted to decide if the beams should be stopped or not. Unfortunately, the piquet was not expert of the injectors and was not fully aware of the procedure to follow. According to the safety rules, the beams were stopped until the piquet could restart the ARCON system.

The LHC50 beam could be delivered to the LHC, even if there were a few faults of the multi-harmonics cavities.

Concerning MTE, the tests continued during the week in the PS to investigate the source of the spill fluctuation. On Monday, the AD was not pulsed for one hour to test if there was any correlation between the AD cycling and the spill degradation. S. Gilardoni wanted to thank the AD for the hour dedicated to the MTE tests.
During the week it was noticed that the tune drifted during the resonance crossing. The same effect was observed on other beams, in particular at injection.
During the weekend the MTE beam was injected again in the SPS. However, to re-inject the beam, many SPS parameters (e.g. the Bfield) had to be changed with respect to the last time the beam was injected a few weeks ago. This seems to be quite unusual and further investigations will be done to understand the reasons of all the changes in the parameters.

S. Gilardoni reminded that the change in number of bunches from 12 to 24 on the LHC50 user requires the intervention of a specialist or some setting up time, that can take from a few minutes up to about half an hour.

S. Hancock added that it is not possible yet to set up correctly the RF trees in INCA due to the missing full implementation of the LKTIM. The problem has been followed up by CO.

EAST AREA (L. GATIGNON):

There was an access for IRRAD.

In T9 and T10 the installation of new experiments took place.

The CLOUD run has been progressing without problems.

There was a radiation alarm caused by a quadrupole failure.

There were a few complaints from the north branch since suddenly the electron content of the beam dropped. This was due to two different reasons: A bug in the reconstruction software of one of the experiments was causing a wrong particle identification; the second problem was related to the target selected to produce the secondary particles. Actually there are two targets to enhance the electron production, i.e., target number 4 and target number 6. Target number 4 has a larger diameter and should be used since the particle production is less dependent on steering or focussing errors.

EAST AREA USERS (H. BREUKER):

DIRAC restarted the data taking period, after solving the problem with the DAQ. In total the experiment lost one week of data.

The installation of the W of CALOR has been progressing.

TOF (H. BREUKER):

The interventions on the new installation were completed. A sandwich target will be used until the end of the run.

AD (D. DUPUY):
On Monday the normal operation restarted after the dedicated run for the ACE experiment. ACE is an experiment studying the irradiation of biological samples with anti-protons for hadrotherapy applications.
The setting up of the AD to the usual extraction at 100 MeV for the traditional experiments was tedious.

On Tuesday there was a large water leak on magnet DR.QFW22.

On Wednesday, access to the machine was necessary to restart an ion pump, damaged by a water leak.

On Thursday, an access to the ring was necessary to finish the work on the ion pump. After this last intervention, the machine could be restarted but with large losses on the ramp between 2 GeV and 300 MeV.
The power supply DR.DVT2904 was found in fault, despite a correct remote state indicated by the control system. After repair, the losses were reduced but still present. Despite the intervention of several specialists to investigate the RF, the electron cooler, the machine optics, the origin of the problem could not be identified.

Friday and the weekend were dedicated to the investigation of the losses, with some improvement thanks to a new RF setting up.

Firstline had to intervene several times during the weekend to fix some power converters.

Unfortunately the performance of the AD could not be improved, which results in reduced intensity delivered to the experiments.

AD USERS (H. BREUKER):
The last week of the AD was preceded by the best 3 weeks of operation of the entire year.
The ACE spokesman wanted to thank the AD for the machine performances during the data taking.

ATRAP and ALPHA are running fine.

SPS (D. MANGLUNKI):
CNGS reached the integrated intensity of 3.77E19 pot, which is still 10% above the expected intensity. The aim of 3.83E19 pot promised for 2010 should be reached on Wednesday 3/11, i.e. 18 days ahead of schedule.

The first half of the week was rather standard operation: fixed target, CNGS and LHC filling with the 150 ns beams could be regularly delivered.

Between LHC fills, the 50 ns beam was set up in preparation for the LHC operation towards the end of the week.

On Thursday, a ten-hour long MD was planned to set up the heavy ion cycle for fixed target physics. However, as mentioned in the PS report, the PS had to give an access to intervene on the 08-80 MHz cavity tuning before the PS could deliver heavy ions to the SPS. This intervention took most of the allocated MD time and it was only in the later afternoon that the PS could deliver ions (with reduced RF voltage on the 08-80 MHz cavity). It was therefore decided to cancel the fixed-target ion MD and to use the short time left for the setting of the extraction with the LHC ion cycle. The ion beams could be extracted to the TEDs in TT40 and TT60.

The north area physics came only back on Thursday midnight. Several hours were lost due to a bad contact on the power fuse of a TT20 power converter.

On Friday, the LHC started to take the 50 ns beam. It turned out that the LHC4 user, which was prepared for that, was giving problems with the fast extraction interlock. The problem, related to some timing table numbering, could not be solved and the 50 ns beam was copied on the LHC2 user.

During the week, parallel MDs continued with ions, high intensity single bunch and the Q=20 cycle.

On Saturday and Monday further tests were done with the MTE beam, as mentioned in the PS report.

The transmitter TRX5 started to give some problems and a one hour long intervention should be planned (added to the call-out list).

M. Widorski asked if CNGS will stop after having reached the integrated intensity promised for this run. D. Manglunki replied in the negative, also because the SPSC encourages the injectors to deliver the maximum possible intensity to the facility.
K. Hanke added that there will be no extension of the CNGS run this year.
H. Breuker added that there was already an extension of the run at beginning of 2010.

CNGS:
No report.

NORTH AREA (L. GATIGNON):
The North Area had a smooth run. The main problem was related to some instability of the H2 line for the CREAM experiment.

On Wednesday, the intensity on T4 was increased for the DREAM experiment.

There was a test of the beam VETO to avoid having the primary ion beam sent to the NA.

NORTH AREA Users (H. BREUKER):
The users were happy with the beam.

CREAM could finish the calibration of the detector.

On H4, the LHCf experiment finished the pi0 calibration.

On H6 there were two ATLAS test beams.

On H8 the DREAM run has been extended.

CTF3 :
No report.

LINAC3 (D. MANGLUNKI):
The source had a failure due to a short circuit on one of the electrodes.

The repair was ongoing with the goal to restart the ion beam by Thursday at noon.

LEIR (M. CHANEL):
The machine has been running well. Thanks to the change of the stripper mentioned at the last FOM, the injected intensity could be increased.
The problem with the damper mentioned last week could be solved. A VME crate was found in fault, although from the CCC it was indicated operational by the control system.
Thanks to this intervention, the losses at extraction disappeared.

PS-IONS (S. GILARDONI):
As mentioned in the PS report, the only concern related to the ion beams is caused by the 80 MHz cavity.

SPS-IONS (D. MANGLUNKI):
As mentioned in the SPS report, the MD scheduled on Thursday had to be postponed.

D. Manglunki wanted to suggest a schedule swap in week 46: the MD and the UA9 could take place on the 15-16/11, the refill of the source on 17-18/11. This change is meant to take advantage from the fact that the source was refilled after the electrode intervention. This schedule also would make sure that the complex does not run out of ions before the planned stop on Dec 6th. M. Lamont preferred not to change the schedule.

TI (P. SOLLANDER):
One of the CCR power converters had a failure just before the FOM due to a broken fuse. The injector access system was affected, but not needed at the moment.

LHC interface with injectors (J. UYTHOVEN):
The filling of the LHC with the 50 ns beam went well. The filling scheme was 12+24+36. During the first fills the waiting time between 12 and 24 bunches was a bit too long.
Apparently, scrubbing will be necessary to prevent e-cloud driven instabilities.

The proton run will conclude on Thursday with the 50 ns, but protons will be taken again the 15 and the 16/11 to test the 75 ns beam.

K. Hanke reminded that the proton injectors (Linac2 and PSB) will stop on the 22/11 since the maintenance of the Linac2 will start.

3. Schedule / Supercycle / MD planning

Version 1.9 of the 2010 injector schedule is available at:
https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/2010-injector-schedule_v1.9.pdf

The MD foreseen for week 44 should be reallocated since it foresaw the setting up of the fragmented ion beam.

M. Lamont presented a new version of the 2011 schedule, available here.

The LHC will start two weeks later than previously foreseen. This time will be allocated to the PS POPS commissioning.
The CNGS run results extended by two weeks, pending the agreement of the SPSC.

F. Tarita reported about the electrical tests after the 8/12:

- Thursday 09/12/10 at 07h00: test Secours General power cut all sites maximum 10 minutes.
- Thursday 09/12/10 to Monday 13/12/10: test Auto Transfer of powers sources No power cuts expected except for the Meyrin site on Saturday 11/12/10 (building 513 et administrative area excluded).

No pulses or power tests will be allowed and there will be only manual emergency supply in case of external power failures. The team EN-EL-OP will be in place or rapidly available.

All planned interventions for the injector complex are available via the on-line agenda:
https://espace.cern.ch/be-dep/FOM/Lists/Agenda/calendar.aspx.

4. AOB

5. Next meeting

The next meeting will be held on Tuesday, 9 November at 10:00 in 874-1-011.

Preliminary Agenda:

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Minutes edited by S. Gilardoni